

THE UNIVERSALITY OF STRUCTURAL SEMANTICS
IN LANGUAGE ACQUISITION
A STUDY IN NEUROLINGUISTICS

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CERTIFICATE

This is to certify that the dissertation entitled *Universality of Structural Semantics in Language Acquisition: A Study in Neurolinguistics* is a record of bona fide research carried out by Joby John, under my supervision and guidance in partial fulfilment of the requirements for the degree of Master of Arts in English Language and Literature of Mahatma Gandhi University, Kottayam.

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DECLARATION

I hereby declare that the dissertation entitled *Universality of Structural Semantics in Language Acquisition: A Study in Neurolinguistics* is the result of my own research work under supervision and guidance of Dr.Siby James, Department of English, St.Thomas College, Pala. It is prepared in partial fulfilment of the requirements for the award of the degree of Master of Arts in English Language and Literature of Mahatma Gandhi University, Kottayam. I declare that this has not been submitted for the award of any other degree from any other university. I humbly submit this for evaluation.

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ABSTRACT

The dissertation entitled *The Universality of Structural Semantics in Language Acquisition: A Study in Neurolinguistics* attempts to study the philosophy of language which is one of the most important areas in modern philosophy and linguistics. It is an attempt to spell the structures of language out in order to come up with the relevance of structure in semantics and to investigate how language acquisition happens in the brain. It is also an attempt to find out whether there is any universality in structural semantics in language acquisition. Language origin, its acquisition and meaning production are the most intensely debated topics in linguistics.

The primary aim of this dissertation is to introduce methods that facilitate an objective analysis of empirical findings in the realm of structural semantics which get shared among different languages. The foremost pronouncement of this disquisition is that all languages in the world have a unique structure in language acquisition, competency and meaning generation. In order to prove the universality of structural semantics in language acquisition, one of the leading linguistic theories of the East, i.e. Bhadrachari's theory of Sphota, and of the West, Noam Chomsky's Transformational Generative Grammar, are scrutinized and applied to the samples of the selected language families. Though the differences among the performances of the languages are undisputed, all of them are acquired in the brain as a consequence of consistent means. Thus emotions, thoughts, facts, representations, grammar and the like which are expressed through other languages, are constructed in the mother tongue. All these varieties are synthesized in human brain which is of a unique structure. The introductory chapter of this dissertation explores the major tenets of language and meaning and describes at length the multifarious concepts related to it. It also deals with the prescriptive theories which have assumed that the tenor of a

word is simply its ‘reference’, the matter it stands for. But there occurs a semantic dilemma when the word has an ideal existence. For example, though a mental picture or experience is possible, the entity of ‘monster’ or ‘ghost’ is abstract. Theories regarding language are encapsulated in the introductory chapter.

The second chapter entitled “Structural Semantics” discusses the fundamental relationship between syntax and semantics. It also deals with how meaning can be composed from smaller elements by applying Bhratrhari’s Sphota theory and probes how not only phonemes and morphemes but also full sentences are produced within a fraction of time. It will also demonstrate that harmonious utterances are articulated together to generate meaning. The relevance of the implementation of the theory of Sphota is to solve the problem of semantics in general linguistics and to examine the global nature of meaning generation.

The third chapter entitled ‘Universal Structure’ elucidates the uniqueness of the structure of all languages by examining samples from selected language families with the application of TG Grammar and manifests the existence of a universal structure.

The fourth chapter named “Language Acquisition and Neurolinguistics” deals with the way children learn to understand and speak their mother tongue and the acquisition of grammar, growth in sentence length and complexity. It also deals with the neurological basis of language and contains a detailed study of brain structure and function. The relevance of this chapter is to underline that language acquisition occurs in the brain and at the level of structural semantics too.

The concluding chapter asserts that there is universality in structural semantics and it plays a vital role in language acquisition. The dissertation concludes by introducing Expansive Grammar by which universal structural semantics can be analyzed.

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CHAPTER 1

INTRODUCTION

Language has been an object of mystery and a subject of research since communication (between nature and humans) got started. Culture or language is a matter of unresolved debate in ontology. Philosophers take multifarious positions in the hypothetical quest whether language is a part of culture or culture is a part of language. It is true that culture is the product of the totality of the unique subjective perception of reality and the preservation and transmission of this collective consciousness in the form of objective reality of a community. Language is the medium through which objective reality is acquired, preserved and transmitted and through which contrasting realizations are made possible. This statement shows the superiority of language to culture and culture to language. That is, one cannot be without the other. Therefore the hypothetical search can be synthesized as these two notions are like the two sides of a coin. David Crystal describes the chronological development of language and linguistics in his epoch making work *The Cambridge Encyclopedia of Language*.

Often, the observations have been subjective and anecdotal, as people reflected on such topics as the nature of meaning, ideals of correctness and the origins of language. But from the earliest periods, there has been an objective approach, with scholars investigating aspects of grammar, vocabulary and pronunciation in detailed and organized way. At the end of the 18th century the subject attracted an increasing number of specialties, so much so that it rapidly became possible to see the emergence of a new field of scientific research with language analysis as it

focus. This approach, first known as philology, dealt exclusively with the historical development of language (408).

It is necessary to have an awareness of the historical developments of language in order to explore the major tenets of language and meaning and to describe at length the multifarious concepts related to it. Objective perceptions and the attempts to preserve and to transmit this collective consciousness are the causes of language. The shift in objective perception, due to dissociation, difference, transfer, distance, competency and the association of the differences, is the cause of various languages and religions. Undisclosed realities and different approaches to perceive them cause the origin of various religions (religion means ‘a particular interest’). According to David Crystal, “A religious or philosophical awareness of language can be found in many early civilizations, in particular, several of the important issues of language analysis were addressed by the grammarians and philosophers of Ancient Greece, Rome and India” (408).

Each religion preserved and transmitted the undisclosed reality through oral and written languages. Recurring images in all cultures show the validity of the uniqueness of undisclosed reality. Buddhism through the Pali Canon (based on oral tradition), Christianity through the Bible (written in Hebrew, Greek), Hinduism through the Vedas (written in Sanskrit), Islam through the Quran (written in Arabic), Judaism through Torah and all religions through their sacred scripts (which are written in their own language) convey the abstract reality, ‘meaning’, with the chain associations of sounds and symbols. Later when translation became necessary, grammarians started to interpret the nature and structure of language.

Every ancient religion claims that sound is the cause of creation. For example, it is written in the Bible that Adam named the creatures. The word represents the reality or meaning. A word conveys meaning through the association of difference. Each word of a particular

language is understood with the help of the other words available. And the associations of the different words in languages represent the reality or meaning. That is, ultimate meaning is not possible without having an Omni glottal language. Many philosophers have tried to untie the mysterious nature of language and meaning. David Crystal says:

The earliest surviving linguistic debate is found in the pages of Plato (C-427-397 BC) (i) Cratylus is a dialogue about the origins of language and the nature of meaning-first between Socrates and Hermogenes, then between Socrates and Cratylus. Homogeneous hold the view that language originated as a product of convention, so that the relationship between words and this is arbitrary. 'For nothing has its name by nature, but only by usage and custom'. Cratylus hold that the opposite position that language came into being naturally and therefore an intrinsic relationship exists between words and things: 'there is a correctness of name existing by nature for everything: a name is not simply that which a number of people jointly agree to call a thing (408).

Aristotle (384-322 BC) in his essay *De Interpretation* supported the former viewpoint. The debate is being continued till now without a conclusion. Conventionalist schools of thoughts are the outcome of this debate.

Roman writers followed the thoughts of Greeks and introduced a speculative approach to language. They used Greek terminologies with little change. Marcus Terentius Varro (116-27BC) codified Latin grammar under title *De Lingua Latina*. Cicero (106-45BC), Quintilian (1 century 170), Aelius Donatus (4th century AD) etc. wrote about Latin grammar. These Latin grammars influenced the language teaching until the Renaissance. This influence is known as the traditional approach to grammar or prescriptive grammar. Just as the Europeans,

Indians also had a systematic linguistic tradition. Panini's Sanskrit grammar was prominent among them. David Crystal says:

The *Astadhyayi* ('Eight books'), dealing mainly with rules of word formation, are composed in such a condensed style that they have required extensive commentary and a major descriptive tradition has since been established. The work is remarkable for its detailed phonetic descriptions: for example, places of articulation are clearly described, the concept of voicing is introduced, and the influence of sounds on each other in connected speech is recognized (the notion of *sandhi*). Several concepts of modern Linguistics derive from this tradition (407).

Many languages came into contact with one another due to war, trade and so on. That enriched each language and sometimes destroyed. The Renaissance "revival of learning" enabled the East to have an entry to the Far East. The Chinese linguistic tradition was discovered. Romance family was preserved. The eighteenth century witnessed the debate between "rationalists" and "empiricists" over the role of innate ideas in the development of thought and language. Latin had lost its position as a universal medium of communication due to the arrival of English. The relationship between Sanskrit, Greek and Latin was proved with the help of comparative philology in the nineteenth century.

Though modern linguistic theory argues its originality, it is actually a polished version of ancient linguistic studies. The Swiss linguist Ferdinand de Saussure's (1857-1913) principles give the structure of the living languages. He studied language as a system of sign, juxtaposition of signifier and signified. The Saussurean principles Diachrony and Synchrony, langue and parole, signifier and signified and syntagmatic and associative (or paradigmatic) are encapsulated

in *Course in general Linguistics* (1916). Franz Boas' (1858-1942) *The Handbook of American Indian Languages* (1911) and Edward Sapir's (1884-1939) *Language* became formative influences on the early development of Linguistics in America. Among the linguists, Avram Noam Chomsky's study of language and mind paved the way to Neurolinguistics and language acquisition. Through his TG Grammar, Chomsky revealed that elementary properties of all languages had an inner structure. These basic properties of languages are unrecognized by a language learner. But the universal structure enables one to learn any foreign language.

CHAPTER 2

STRUCTURAL SEMANTICS

The Indian linguistic philosophers could develop their own unique ideas in the realm of semantics. Among these philosophers Panini has been considered an important linguist in the development of Sanskrit grammar. In the book entitled *Modern Linguistics an Introduction* S.K. Verma and N. Krishnaswamy give an introduction to Panini:

Panini gives a scientific analysis of the structure of Sanskrit in his *Astadhyayi*.

Bloomfield described the grammar of Panini as a monumental work of human intelligence. Patanjali an early student of the Paninian School, defined the purpose of the *Astadhyayi* as the preservation of the ritual language in its traditional form; the capacity of generation of forms from one pattern to other; the sanctity of the grammatical science itself as an integral part of scripture; the economy of description to facilitate memorization; and the clarity of description. Panini wrote a mathematical grammar capable of generating new forms which also accounted for all extant forms and construction in his language (327).

In post Panini tradition Bharthrhari, the author of *Vakyapadiya* was the important linguistic theorist who tried to develop a theory of semantics. His major contribution to semantics was the theory of Sphota. According to S.K.Verma and N. Krishnaswamy:

This great grammarian-philosopher believed in the transcendental speech-essence (sabda-tatva). The central idea of his philosophy is that the speech-principle has three stages in the course of its manifestation, namely, 'vaikhari', 'madhyama' and 'pasyanti'. The first stage is the manifestation of speech (Vaikhari), i.e., the

actual sounds uttered by the speaker and heard by the listener. The next stage is the manifestation of the speech principle (madhyama), i.e., the linguistically relevant in a sentence. Pasyanti is the supreme reality of a flash of insight (329).

Vakyapadiya is the earliest systematic study on syntax. Bhartrhari explains the major ideas of his concept of “Sphota”, which is one of the basic Indian thoughts on semantics in detail in this work. Even many of the modern linguistic theories are just refined forms of Sanskrit theories on language. According to Prof. J. Brough (*Theories of General Linguistics in the Sanskrit Grammarians*) the Sphota is simply the linguistic sign in its aspect of meaning bearer. Bhartrhari’s scientific rigour is not only focused on the concept of Sphota but also he keenly studies Dhvani too. Though Patanjali talks about Sphota, it is Bhartrhari who develops Sphota theory in an extensive way. He studies words under two aspects as Panini did. Both of them considered Sphota at the phonemic level and as a vehicle (meaning-bearing symbol). Sphota happens in the brain (mind) of the speaker and the listener hears only the acoustic manifestation of the impulses in the brain. Sphota ends soon after its acceleration. What the listener hears is the Dhvani. Therefore each sound plays a vital role in the realm of semantics. The intonation of each sound can suggest meaning variation. It is clear from the Sphota that ultimate meaning is not possible. Because no one except the speaker can trace the pure Sphota.

There is a fundamental relationship between sound and meaning. Meaning can be composed from smaller elements. *Vakyapadiya* gives an exceptional interpretation for Sphota:

Sphutati prakasaterthosmadhiti Sphotah

Vacaka iti yavat, Sphotavada (5).

Sphota is that by which meaning is expressed. Sphota is a theory by which the old Sanskrit grammarians studied language. Therefore there are many perceptions on Sphota theory.

Bhartrhari discusses some of them in *Vakyapadiya*. K.K. Mishra in his essay entitled “Bhartrhari’s Theory of Sphota” explains them coherently.

According to one view, Sphota is the original sound produced by various vocal organs with the contact of various vocal organs with the contact of various places of articulation. These produced sounds vanish as soon as they are articulated but at once these produce other sounds (echoes) which spread in different directions like the reflections of the original one. Later sounds produced by the Sphota are Dhvani which spreads like a wave and becomes weak as it goes far from the Sphota gradually....Bhartrhari has mentioned another theory regarding Sphota and Dhvani. The Sphota and the Dhvani are produced simultaneously. Bhartrhari has mentioned a third view according to which the Sphota is the class (*Jati*) revealed by various individual instances and the Dhvani its member (2, 3).

The external and internal levels of Sphota are explained well by him. According to NVP Unithiri Bhartrhari gives the nature of a sign and its divisions. For him each word is capable to exist (sound) and able to make the existence of other (meaning) as if the light does. This double capacity of a sign is explained by Bhartrhari in *Vakyapadiya* thus:

Atmarupam yatha jnane

Jneyarupam ca drsyate/

Artharupam tatha sabde

Svarupam ca prakasate// (1, 50).

According to K.K. Mishra Indian grammarians have analyzed speech situations and classified these into four categories namely Para, Pasyanti, Madhyama and Vaikhari. But Bhartrhari encapsulates these classifications into three divisions such as vaikhari, madhyama and pasyanti. Ordinary people do not realize *Para*. Therefore, the analysis of the three classifications mentioned above is important to get an apt clarification of what Bhartrhari meant by the Sphota theory.

Vaikhari deals with the individual instances of the production of speech sounds. The utterances are perceivable to both speaker and listener. Subjective utterances are its main specialties. The production pattern of each speech sound is given more importance. Meaning is not generated here or dealt here. These un-contextual utterances make no meaning. But when these un-contextual productions of sounds are structured by placing opposition (vowels and consonants) in a context, these structural units of sounds start to generate meaning. *Madhyama* is the level of Dhvani in which the phonological structure produces meaning the former is known as vaikhari Dhvani and the latter is known as *Prakṛta Dhvani*. It is the linguistic pattern within the mind of a producer and a receiver who are in a same linguistic context or environment. Therefore all subjective variations get regulated at this level. According to *Sphota* theory it is accepted as expressive of *Sphota*. K.K. Mishra uses lines from *Vakyaṇṇadiya* in his essay “Bhartrhari’s Theory of Sphota”.

Vaikharya hi krto nadah parasravanagocarah

Madhyamaya krto nadah Sphotavyanjaka ucyate (2).

Though there are multifarious utterances these sounds will not express *Sphota* until they get meaning. *Sphota* is permanent semantic entity. According to K.K. Mishra:

Sphota is integral and meaning-bearing aspect of the language. Bhartrhari has accepted this form of speech as most important and mentioned it as *Sabdabrahma* in his opening verse of *Vakyapadiya* (1, 1)....This *madhyama* form of speech is to be realized by all the speakers of a language. Though the *Sphota* is regarded as one and indivisible but it is classified on the basis of expressive sounds as *vakya Sphota*, *Pada Sphota* etc. This *madhyama vak* is sometimes expressed even without *vaikhari Dhvani* e.g., when somebody is reading silently there is not active use of *vaikhari* speech but with the help of script, *madhyama vak* is revealed which expresses the meaning bearing *Sphota* (5, 6).

Pasyanti is the third classification of *Sphota*. It generates meaning as *Madhyama Dhvani* does. But according to Bhartrhari these meanings cannot be realized by people except *Yogins*. His linguistic analysis gives variety of *Sphota* which generates meaning. Ferdinand de Saussure's linguistic theories on sign are also similar to Indian philosophies on *Sabda* and *artha*. But Bhartrhari gives a metaphysical realm to the school of Linguistics in which words are considered as physical entities which are manifested through proper utterances./*Sabdopi buddhistah srutinam karanam prthak/* (1, 46). A.H. Gardiner in his work *The Theory of Speech and Language* explains the physical nature of words.

As words exist in the possession of every individual (of a linguistic community), they are psychical entities, comprising on the one hand an area of meaning and on the other hand the image of a particular sound susceptible of being physically reproduced whenever wanted (70).

As mentioned above Bhartrhari's *Sphota theory* is not only a theory of the origin of a meaningful utterance but also it deals with the problem of generating multiple levels of meaning. *Abhita*, *Laksana* and *Vyanjana* divisions are also taken into consideration. These features of words are to be analyzed with the support of Neurolinguistics that Indian grammatical theories open its vita towards the modern neuro studies too. It is clear from the studies that the generation of meaning is connected to contextual factors and the analyzing capacity of the receiver. Each and every unit of facing utterances (voiced and voiceless) are given particular perceptions within where that language is spoken and when these utterances become subjective they get more colours of signification. It is how words get meaning. When these words are arranged one after another, a sentence gets meaning. The meaning of a sentence will change according to changes in intonation and syntax. This feature of *Sphota* is explained in the academic thesis entitled *Studies in Linguistics-Bhartrhari's Sphota Theory: an Exploration in Semantics, Linguistics and Cross-cultural Problems of Translation* by Ravi Sheorey.

The *Sphota* is revealed in stages by each succeeding sound, but by itself it is indivisible and not to be represented as capable of splitting into successive sound segments. It is comprehended in a process which *begins* with complete ignorance, passes through partial understanding and ends in complete knowledge (dyana) (7/20).

Bhartrhari denies the fixed existence of the meaning of a word. This non-reality of words can be explained with an example. If one person does not know the meaning of the word "Table", he will not understand the sentence's meaning "Bring one table". By this Bhartrhari states the relevance of one to one correspondence. Sometimes the context where the listener is placed provides some hints by the way of gestures. But this is not possible always. He proves the

plurality of word's meaning according to the contexts. Therefore for him the duty of the grammarian is to define these structural changes, which cause the variation in semantics. Sphota theory always focuses on the flux of semantics. In *Vakypadiya* he tries to prove this fundamental truth that the meaning of a word depends on the intention of the speaker to convey the so called meaning. Ravi Sheorey explains the change of meaning by an analogy.

The human eye has the natural power of seeing many things at a time, but it can see a particular object only when the individual decides and focuses his attention to see that object. The process of understanding the particulars meaning of a word has three aspects: first, a word has an intrinsic power to convey once or more meaning (*Abhita*); second, it is the intention of the speaker which determines the particular meaning to be conveyed (*abhisamdhana*); and third, the actual application (*viniyoga*) of the word and its utterance....Bhartrhari also speaks about the distinction between the explicit (*mukya*) and implicit (*nantariyaka*) meaning of words. When we cannot see an object in the dark, we light a lamp to see it. The lamp illuminates not only the desired object but also the other objects lying nearby. The main object here represents the explicit meaning of a word, and the other objects around or the other details of the object (e.g., its colour or engraving, etc.) represent implicit meaning. A word may also bring to one's mind certain associated meanings, which Bhartrhari compares to fuel that, when lighted gives not only fire but smoke as well (9, 10).

It is clear from the above description that meaning is generated only with the association of notions. *Samsarga* (contact), *samyoga* (association), *Viprayoga* (dissociation) *Sahacaya* (companionship), *Virodhita* (opposition), *Artha* (sense), *Prakarna* – (the context of situation),

Linga (indication), *Sabdasyanyasya samnidhih* (the vicinity of another word), *Samarthayam* (the capacity that is known from the result) *Auciti* (propriety or congruity), *Desa* (place), *Kala*(Time), *Vyakti* (grammatical gender), *svara* (accent) etc. are some of the tools propounded by Bhartrhari to demonstrate the changing nature of the meanings of words as well as sentences. His linguistic theories transcend space and time. His linguistic philosophy projects the vitality of psycholinguistics. His theories of language are reflected in modern Linguistics.

CHAPTER 3

UNIVERSAL STRUCTURE

It is found in Bhartrhari's Theory of Sphota that there is a universal structure in the manner of production and reception of speech sounds and this universality is the base of every language. In this chapter the structural features of languages are analyzed in order to come up with its universal structure in the realm of production, reception and cognition. Therefore, samples from the prominent language families are scrutinized under Transformative Generative Grammar in order to manifest the existence of universal structure. This chapter will elucidate the uniqueness of the structure of all languages in the realm of acquisition and meaning generation. Generative grammar is developed by Avram Noam Chomsky, Professor of Linguistics at the Massachusetts Institute of Technology. His work entitled *Syntactic Structures* which was published in 1957 is the bible of generative grammar. He also tries to give the different phases of sentence structures. One of the aims of his theory is to analyze sentences from its root level. Chomsky turns his focus to competence and performance to achieve this aim. According to David Crystal:

Speakers use their competence to go far beyond the limitations of any corpus, by being able to create and recognize novel sentences, and to identify performance errors....Chomsky's proposals were intended to discover the mental realities underlying the way people use language: competence is seen as an aspect of our general psychological capacity (413).

Chomsky developed the rewritten rules [PS] and gave birth to Transformative Generative Grammar. According to PS analysis all sentences can be analyzed or rewritten under the following formula i.e.

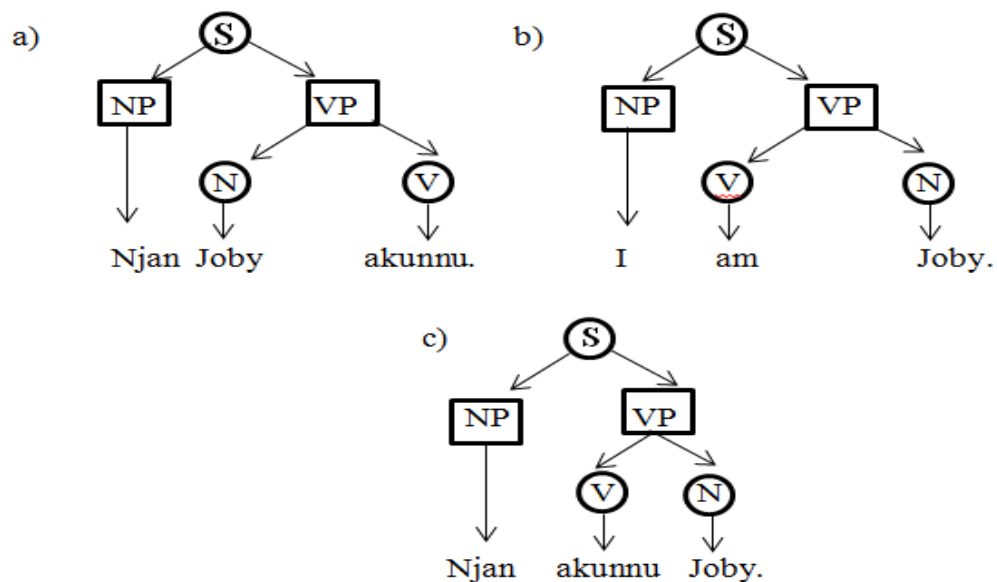
$$S \rightarrow NP + VP$$

Here 'S' stands for sentence and NP and VP are for nodes which stand for "Noun Phrase" and "Verb Phrase" respectively. Many attributes are added to NP and VP to make the sentence more descriptive and complex. The application of attributes is variable according to the shift from one language to another. Even though there are such variations the realms of the placements of the attributes all languages follow a universal method in language production and acquisition.

Here is given an analysis according to PS rules in which two languages (Malayalam and English) are studied.

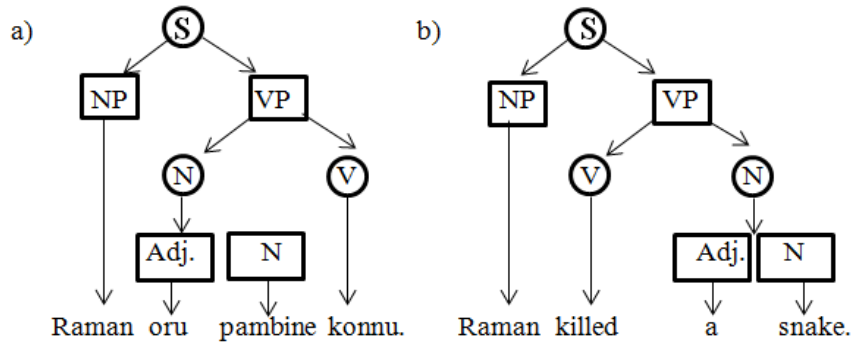
STATE

(Figure 3.1)



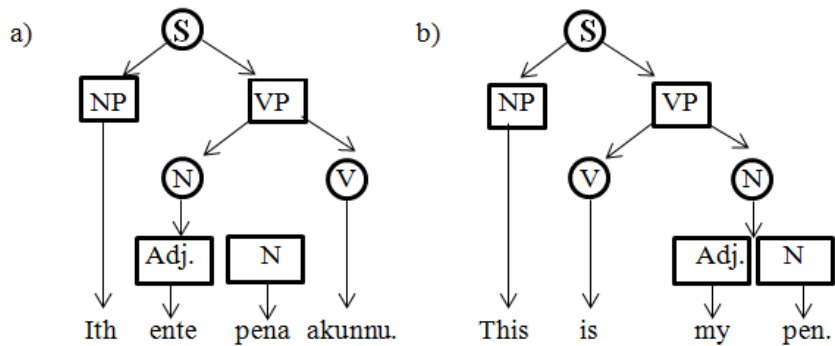
ACTION

(Figure 3.2)



POSSESSION

(Figure 3.3)



In the above examples three functions of a verb (to denote an action, state and possession) are explained with the help of PS rule. But it may not be useful to find out the universal nature of structural semantics in language acquisition. Because in one language affixes are placed at the end of the words (refer figure 3.1,2 and 3.a) or sentence in order to change the nature of an expression (refer figure 3.1.c) whereas other languages may not follow this order/structure (refer figure 3.1,2 and 3.b). These variations in the structure may lead to semantic

changes (refer figure 3.1.a,c). Therefore a second language learner needs a long time to get into a second language. No language can be translated to another and every translation is an interpretation. Therefore PS analysis does not give us the universal nature of structural semantics in language acquisition. But there we can find a unique structure that every sentence is made of an NP and VP.

Most of the European scholars are interested in ancient languages like Greek and Latin and the developed modern European languages from them. Apart from the ancient grammarians Noam Chomsky tried to describe the universal nature of languages by using TG grammar as if Bhartrhari did with his Sphota Theory. Chomskian theories questioned some of the basic principles of the American Descriptive Linguistics or Structural Linguistics. Some of the basic principles of these schools are encapsulated by SK Verma and N. Krishnaswamy.

- (a) Language is social behavior and the subject matter of Linguistics is the study of the total set of habits and patterns.
- (b) Analysis and description must confirm the requirements lay down by a scientific discovery procedure.
- (c) Each language is 'suigeneris' and hence must be described in terms of its own systems and sub-systems. No two languages are alike. There is no universal grammar.
- (d) A language is an arbitrary system of articulated sounds made use of by a group of human beings as a means of communication.

- (e) There is no such thing as a ‘natural language, in the sense that it is dictated by nature.... These principles were not challenge of till the 1950s (141, 142).

But Noam Chomsky through his books *Syntactic Structures* (1957) and *The Logical structure of Linguistic Theory* (1955) presented his views on structural semantics. He questioned some of the notions of American Descriptive Linguistics. Many of Chomskian ideas are similar to Sphota theory. According to Chomsky there is a mental reality behind actual linguistic behavior and the inner reality is vital for the analysis of the words uttered. The universal linguistic structure is programmed within a language user soon after she/he becomes the part of a community and this constitutes an innate property of the mind. Like *Vaikhari* and *Madhyama* in Sphota theory Chomsky also gives *competence* and *performance* to linguistic descriptions to answer the hypothetical doubts regarding the generation and synthesis of sentences and its meaning. Therefore, for Chomsky the mere classification of surface output does not give the actual principles and methods of sentence construction. S.K. Verma and N. Krishnaswamy say how Chomsky defines grammar.

A grammar is a finite system of rules (i.e., significant generalizations) which generated and describes an infinite number of all and only possible sentences in a language...Grammar is ‘generative’, in the sense that the output is not the same as the input and it is formalized. In any generative process the output is not exactly the same as the input. In the other words, from a fairly limited number of utterances seen and heard, the learner selects some (depending on his or her growth and maturity), and abstracts some information and internalize it; the internalized system of rules is used in the production of utterances (140).

Chomsky's theories are trying to prove the universal nature of language. Bhartrhari's Theory of Sphota is also the same. Both these two theories show that the grammar is generative. All verbal expressions are the regulated expressions of internal reality. Therefore a set of syntactic, semantic and phonological rules are to be learned to learn a language. It is necessary to apply supra segmental features to analyze a sentence or word groups. For Chomsky as if Bhartrhari each sentence is produced from a kernel sentence. Chomsky divides the relationship between the actual sentence and a kernel sentence. These divisions are entitled as surface structure and deep structure. The deep structure is the innate linguistic structure and the surface structure is its irregularities. The theory of Sphota also gives the same. Chomsky uses TG Grammar to depict the relationship between deep structure and surface structure and describes them by using T-rules (Transformation Rules). The net result of these transformations is the phonetic expression and its semantic representation which lead to the cognition of the language. According to Sphota theory a surface representation is not the actual pronouncement. In another words an abstract entity (sentence) is represented through the concrete expressions.

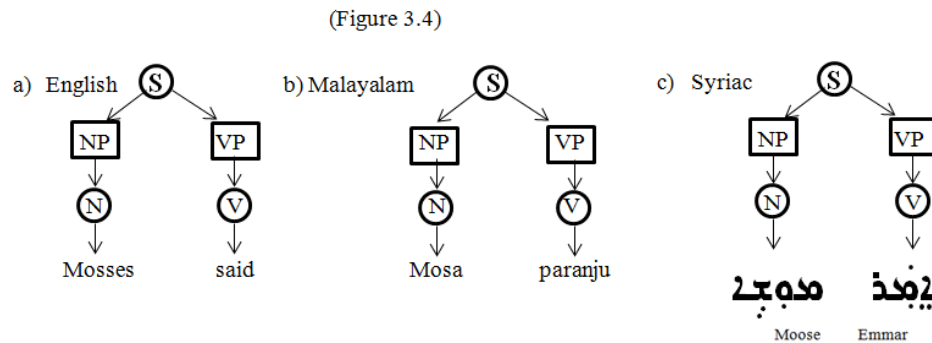
S.D. Krashen, a Linguist in his academic publication entitled *Second Language Acquisition and Second Language Learning* (1981 Pergamon) describes that a native speaker with inbuilt grammar can make infinite expressions and can describe those expressions. Chomsky describes this notion in *Syntactic Structures* as:

The most striking aspect of linguistic competence is what we may call the “creativity of language”, that is, the speaker's ability to produce new sentences, sentences that are immediately understood by other speakers although they bear no physical resemblance to sentences which are familiar... The person who has acquired knowledge of a language has internalized a system of rules that relate

sound and meaning in a particular way. The linguist constructing a grammar of a language is in effect proposing a hypothesis concerning this internalized system (26).

These internal rules and its manifestations are represented with the help of PS by Chomsky. For him the syntax of a language should have two parts: a phrase-structure component (e.g. $S \rightarrow NP + VP$) and a transformational component. He explains all these transformations by using T-rules. This method is used here to analyze the samples of Malayalam and English. From the figures (Fig: 3.1, 2 and 3) it is clear that each sentence in these languages contain NP and a VP and each one these languages becomes different according to the expansion of these two basic elements of sentences. A few samples are examined here.

It is clear from the P-structure (Figure 3.4. a, b and c) that all the samples contain a same structure where NP and VP are distributed according to their style. But when these samples are



analyzed in a microscopic way, there lies a difference. The samples (3.4. b and c) are agglutinative types whereas the sample (3.4.a) is not. Because sometimes the adjectives, proposition, tense change etc. are assimilated to the root. For example in the sample (3.4. c) *Emmar* means “He said”. That is that word itself is a meaningful sentence and the next word shows the name of the person. EVN Nambutiri in his *Vakyakhatana* states that the structure of

the word shows to which gender and number the subject belong to. Each sample shows that language is the expansion of the verb (which denotes an action, state and possession). But this problem will be solved by the application of TG grammar and its representation, where deep structure, surface structure and phonetic representation are described. This is the level in which the similarities of Eastern and Western linguistic theories are combined to give emphasis to Neurolinguistics, where universality of structural semantics in language acquisition is found.

According to V. Syamala Chomsky stated the universal nature of all languages by introducing TG grammar. The considerable comparability between the core semantic relations of a sentence and its acquisition are common to all languages. Chomsky describes his mathematical approach to linguistic and grammatical theory in *Aspects of the Theory of Syntax*:

But the fundamental reason for [the] inadequacy of traditional grammars is a more technical one. Although it was well understood that linguistic processes are in some sense “creative” the technical devices for expressing a system of recursive processes were simply not available until much more recently. In fact, a real understanding of how a language can (in Humboldt’s words) “Make infinite use of finite means” has developed only within the last thirty years, in the course of studies in the foundations of mathematics (30).

His study on language acquisition leads to the same conclusion that there is an innate grammar in all people. Through his TG Grammar Chomsky revealed that elementary properties of all languages had an inner structure.

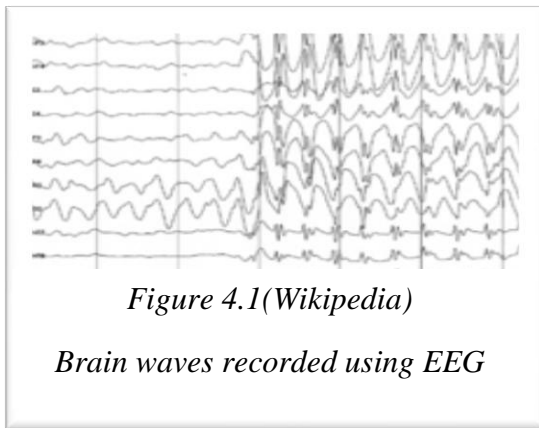
CHAPTER 4

LANGUAGE ACQUISITION AND NEUROLINGUISTICS

All theories regarding language acquisition and meaning generation analyze the spoken or written form of language to study how language is acquired and meaning is generated.

Bhratrhari and Chomsky could reach the psycholinguistic realm of language. Apart from those Eastern and Western linguistic theories, Neurolinguistics offers a developmental theory of language and the neural system, which is the source behind all linguistics capabilities. Neuro-linguistic deals with the biological factors behind language learning, where all languages are give a universal nature in the realm of language acquisition. It is the study of the neural mechanisms in the human brain that control the language production and acquisition. It studies the relationship between language and brain. The term ‘Neuro-Linguistics’ was firstly used by a French neurologist Henry Hecaen in the late 1960s. Zoltan Dorneyi gives an introduction to Neurolinguistics in his book entitled *The Psychology of Second Language Acquisition*.

Neurolinguistics shares similar objectives with cognitive Linguistics but draws on neuropsychology rather than cognitive psychology as the main source of psychological knowledge....The term ‘Neurolinguistics’ was first used by French neurologist Henry Hecaen in the late 1960s, to denote the discipline that was to bridge a gap between the neurosciences (neurology, neuroanatomy, neurophysiology and neurochemistry) and human communication (Linguistics and psycholinguistics). Originally, the main emphasis of the field was on studying verbal deficits resulting from cortical lesions and thereof Neurolinguistics was initially closely associated with language pathology (6).



But later the focus of this new field was shifted to find out the relationship between language and brain. If the human brain were simple enough for the researchers to understand, they would be too simple-minded to understand it. For the convenience, it is necessary to have a basic awareness of human brain to find out the

relationship between language and brain. The anatomical structures and functional mechanism permit language acquisition. The nervous system provides this capability. All data from outside(input) function as stimuli. All these external stimuli (Reflected reality) or input including visual, olfactory, gustatory, auditory and tactile are converted to neuro impulses (transformed reflected reality) (Refer figure 4.1) and these transformed reflected realities are analyzed within the brain. These inputs are converted within the receptors (eyes, nose, ear etc.). Nervous signals travel rapidly from the receptors to brain and vice versa. These neuro impulses are produced due to chemical changes, within the receptors or in the brain. Each and every input trigger a kind of chemical change and these become neuro impulses. These electrical potentials are a fundamental physiological currency. It is described in *Principle of Animal Physiology* by Christopher D.

Moyes and Patricia M. Schulte:

Just as we use electricity to power many of the machines we use in our daily if lives, animals also use electricity to power cellular activities. Cells establish a charge difference across biological membranes by moving ions and molecules to create ion and electrical gradients across membranes. All cells and many organelles within cells rely on this potential difference, or membrane potential, to

drive processes that are needed for survival. Animals also use changes in electrical potentials to send signals within and between cells, helping to coordinate the complex processes of the body. Muscles and neurons, two cell types that are found only in animals, use changes in membrane potential to send signals (44- 45).

It is clear from the above description that electrical theory has played an important role in the realm of the Central Nervous System (CNS), Peripheral Nervous System(PNS) and movement of muscles. Not only electrical potentials but also temperature affects physiological processes. The rate of chemical reactions changes according to the temperature variations. All inputs have the capacity to influence biochemical and physiological patterns in an active or passive manner. All inputs are received according to its need and function concerning human body as well as animals. Food, water, light and air are some of the basic essentials of animals. There is a pattern through which these things are received and are transformed into smaller units.

Everybody will reject what is unnecessary. But apart from these inputs language (consider it as an input or reflected reality) has a special nature. That is language affects the brain and it will be recorded in the form of chemical compounds and neuro impulses. Human brain is a programmed and self programmed system. Comparing to human brain other animals brain systems are simple programmed system whereas human brain makes simple to complex. The relevance of Neurolinguistics begins this point to analyze the science of language. Language enables its user to remodel their physiological and psychological machinery in response to external conditions. The vitality of children's literature and religious texts is revealed here. Language includes both potential and kinetic energy forms. All biological processes involve combinations of Radiant, Mechanical, Electrical, Thermal and Chemical forms of energy.

Because organisms can transfer one form of energy into another and language (combination of all senses' experience and that's verbal expression) can trigger all these energy forms. That is the

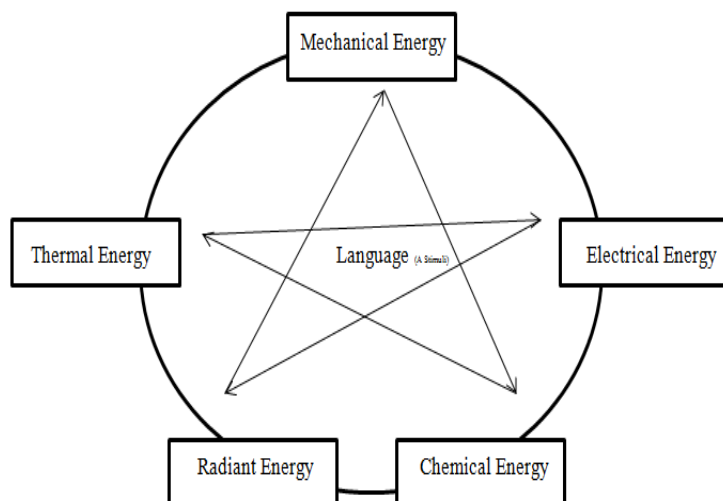


Figure 4.2 (*Chemistry of Life in Principles of Animal Physiology*, Chapter 2, p.55)

reason why if somebody says something to us we will respond either positively or negatively.

As it is stated brain is behind all verbal and non verbal productions. Therefore it is necessary to have a microscopic search to come up with the result of the quest to find out the universality

of language acquisition. Communication happens through signals in the form of sounds, scents and visual cues. All these outputs are the transformed amplified chemical and electrical signals within the brain. According to Christopher D. Moyes:

All every level of organization, life depends on communication. Animals send signals in the form of sounds, scents and visual cues. Within an organism, the organs, tissues and cells communicate with each other using chemical and electrical signals. Even within a single cell there is constant communication of information among organelles. Every organ, tissue, cell or organelle in a multi cellular organism must stay in constant communication so that the organism can function as an integrated whole (138).

Brain is a complex system made of neurons and other chemical compounds. This complex nervous system is divided into two: CNS and PNS. It is a very complex communication

network that allows an organism to interact in appropriate ways with its environment (both external and internal) (Robert M. Berne). It allows a body to respond to the external stimuli. Neural circuits make these responses possible. CNS and PNS are described well in *Physiology* by Robert M. Berne and Matthew N. Levy:

The peripheral nervous system (PNS) provides an interface between the central nervous system and the environment it includes sensory components formed by sensory receptors and primary afferent neurons and motor components formed by somatic and auto motor neurons (93). The central nervous system (CNS), among other functions, gathers information about the environment from the PNS, processes this information and perceives part of it, organizes reflex and other behavioral responses, is responsible for cognition, learning and memory, and plans and executes voluntary movements (94).

Sensory detection, information processing and behavior are some of the basic function of the nervous system. When these functions are connected to Linguistics, language acquisition and

Mechanisms for propagating action potentials

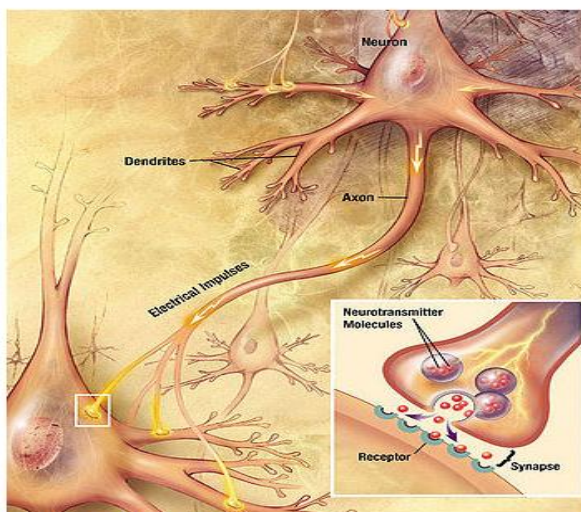


Figure 4.3 (Wikipedia)

its preservation (memory) are some other forms of the information processing which allow behavior to change according to the variation of the matrix.

Information processing is a neural communication system through which neural circuits are interconnected. Axons play a vital role in the transformation of information. The

information conveyed by axons may be encoded in several ways. According to Robert M. Berne and Mathew N. Levy

A labeled line is a set of neurons dedicated to a general function, such as particular sensory modality. For example, the visual pathway includes neurons in the retina, the lateral geniculate nucleus of the thalamus, and the visual areas of the cerebral cortex. A second way in which information is encoded by the nervous system is through neural maps. A somato topic map is formed by arrays of neurons in the sensory or motor system that (1) receives information from corresponding locations on the body surface or (2) issue motor commands to move particular parts of the body. In the visual system, points on the retina are represented by neuronal arrays that form retinotopic maps. In the auditory system the frequency of sounds is represented in tonotopic maps.

A third method for encoding information is by patterns of nervous impulses...

(The nervous system and its components.103).

According to Anne Waguh and Allison Grant sensory receptors provide information to CNS about its external and internal environment. The information is received in the CNS by trains of nerve impulses, which is the result of the excitation caused by stimulus.

All these stimuli are generated by special sensory systems, which include the visual, auditory, vestibular, olfactory and gustatory systems. These special sensory systems are in all living beings to behave according to the signals in the matrix. Proper language acquisition includes the complied encoding of these external reflected realities, decoding of the transformed reflected realities and the response of to these external stimuli. Proper meaning is generated only

when a proper co-ordination of CNS and PNS happens. When all these facts connect with language acquisition it is obvious that there is a universal structure in language acquisition in the realm of physiology as well as psychology. Language acquisition *begins* when fetus starts to

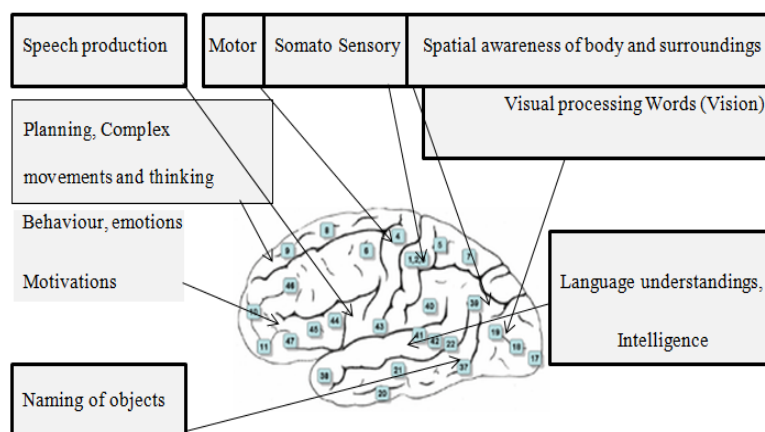


Figure 4.4 Areas of the cerebral cortex involved in higher mental functions. (Chapter 7: *The Nervous System*. P.154)

respond to the external stimuli. Majority of these external stimuli includes audio excitations (Excitability is a cellular property of

neurons involving electrical signals that enable them to receive and transmit information.

Sensory detection is the process whereby neurons transduce environmental energy into neural signals. Sensory detection is accomplished by special neurons called sensory receptors. Various forms of energy can be sensed, including mechanical forces, light, sound chemicals, temperature, and in some animals electrical fields.). That is if a child is going to be born in a place where English is the mother tongue the child will already have an experience of the structured matrix before its birth. Later when the child grows, he/she start to respond to the reflected realities as natural. The immature organs of speech do not allow the child to reproduce the sounds he/she hears around. Later their experiences of actions, states and possessions are learned by the child how these excitations are defined by the parents and society to him/her. And in the case of second language acquisition, an act of paralleling and equalization are happening. For example the word “man” is translated to Syriac as **ܓܒܪܐ** *Gavra*. The whole specialty of the word

“man” (in the realm of Meaning) is equalized in the word “man”. But for a native speaker its meaning is entirely different. Therefore second language acquisition is a process in which the entire brain takes part as if of the first language.

CHAPTER 5

CONCLUSION

Language acquisition is a process where all senses come together to describe a reflected reality. The main question addressed by this dissertation is whether there is universality in structural semantics in the realm of language acquisition. Semantics and syntax are interrelated, that is, a change in syntax causes a change in meaning. Therefore both these faculties are universal properties of languages, even at the single word level. A word denies its meaningful existence by being meaningful. That is, it gets meaning only when a thing (which does an action, which is in a state or with possession) is referred to by it and the referred thing gets its identity only when other referred things get their existence. All these understandings are not happening outside the brain, but inside it. In *The Cambridge Dictionary of Philosophy* Robert Audi gives an introduction to the philosophy of language.

Theories of meaning can also be called semantics, as in “Grecian Semantics” though the term is sometimes restricted to referential and/or truth-conditional theories, which posit meaning-constitutive relations between words and non-linguistic world. Semantics is often contrasted with syntax (The structure of grammaticality). Permissible ordering relations between words and other words in well-formed sentences, and with pragmatics, the rules governing the use of meaningful expression in particular speech contexts; but linguists have found that semantic phenomenon cannot be kept purely separate either from syntactic or from pragmatic of phenomena. In a still more specialized usage, linguistic

semantics is the detailed study (Typically within the truth-conditional format) of particular types of construction in particular natural language (674).

Syntax and semantics are highly correlated in all languages. Meaning is generated only when the reflected realities take involvement in the distributed networks of neuro impulses. The generation of meaning is based on how these multifarious reflected realities are conjoined to form knowledge. In practical sense language is used as a medium through which an action, state and possession of living and no-living things are conveyed to generate the same sense or experience in the listener. Tense defines at what time these kinds of action take place. This is the general nature of all languages. The term “Universal Structure” here means the underlying universal nature of the structure of all tongues. In *Semantic Memory and the Brain: Structure and Processes* Chao LL Martin describes the relationship between structure and syntax.

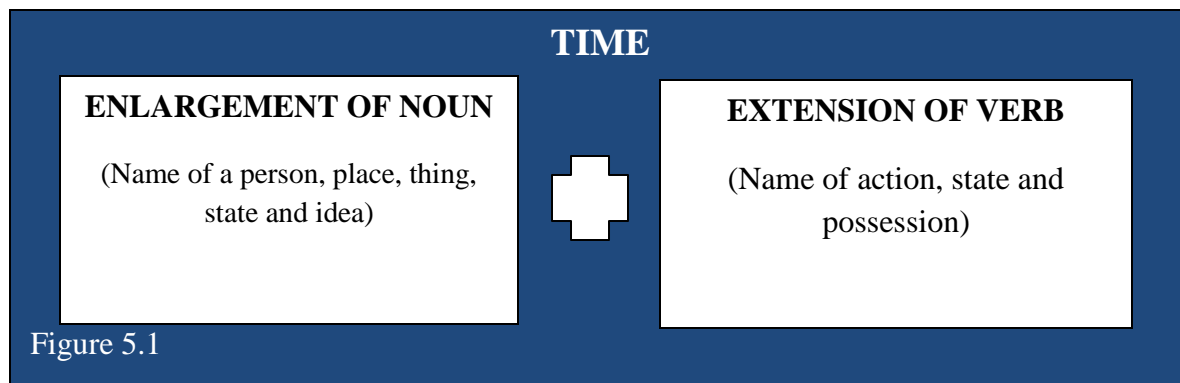
In order to establish whether semantics and grammatical class are independent organizational principles of linguistic knowledge in the brain, these potential confounds must be removed. In the present study we minimized systematic semantic-grammatical confounds by using verbs and nouns referring only to events. This represents a departure from previous studies contrasting action-verbs to object-nouns. To examine modality-related semantic effects across grammatical classes of verbs and nouns, we used words referring to motion events and words referring to sensation events whereas a wealth of studies have investigated modality- related effects for objects (194).

Structural semantics has shown that the comprehension and production of even the simplest and most commonplace language is a highly complex, almost miraculous process. The analysis of the surface structure proves that the general internalized rules are the same for all

languages. That is, a sentence consists of a noun and a name of an action, state (being) or possession. The expansion of a sentence from simple to complex is by enlarging the noun and extending the verb. Varieties of constructions are also formed by the same process. For example, the question “What is your name?” comes from the internal quest of the speaker to complete the sentence. “Your name is.....” No language is given exception from this general rule. The phonemic representations are different from one language to another. Therefore the proper verification of meaning is not possible. One utterance will be changed slightly from the original meaning when it is generated by conjoining different attributes. Language is not enough to convey the proper meaning. Meaning is expressed through the expansion of limited rules (perceptions). Therefore, no objective analysis is possible for the realm of meaning, but structure can be analyzed objectively. For example:

- (a) “Rama killed a snake” (b) “Raman pampine konnu”

Here the structure of the sentences (a) and (b) can be analyzed objectively to come up with unique structure where noun and verb are expanded. But suprasegmental features change the nature and kind of these sentences. Structural changes also affect the meaning of the sentences. The distance between the speaker and the listener also affects meaning. The basic structure of all languages can be represented in the following figure.



The expansion of both these elements causes the generation and transformation of different kinds of sentences (Assertive/Declarative, Interrogative, Imperative and Exclamatory sentences). The name can be that of a person, place, thing, idea etc. ‘Name of action/state/possession’ means “an action which is done by the subject of the sentence, state of the subject and possession of the subject”. A sentence gets developed by enlarging the noun and expanding the verb within it. Qualifiers are used to qualify noun and modifiers are used to modify verb in accordance with their number, manner, frequency, place, negation, interrogation, quantity and so on. Sometimes different sentences or phrases are joined to convey a particular meaning and often limited syntax becomes ambiguous (increasing the suggestive power of the sentence). The gaps within the syntax are created by the process of limitation. Such individual changes within a construction ultimately lead to a restructuring of the meaning. Michael Swan in his book *Grammar* describes this process of “grammaticalization”.

Much of grammar starts out from lexis. Where new grammatical elements are needed, either to fill developing gaps arising from phonetic erosion, or to increase the expressive power of the language, they are typically created through the grammaticalization of ordinary words such as nouns or verbs. This has happened for example, with English ‘have’ ‘do’ and ‘will’. If we look at their use in verb phrase like ‘has seen’ ‘did not understand’ or ‘will go’, we can see that their original meanings (‘process’, ‘act’, ‘want’) have been completely bleached out in these contexts in favour of their grammatical functions as auxiliaries (55, 56).

It is necessary to eliminate the differences within the existing languages to come up with their universal nature. First of all, the values of different graphemes are analyzed with the help of

an HTML page entitled “ENSYGLOGE” which is programmed by Shan Augustine, Associate Professor, Department of Computer Science, Mar Augustinose College, Ramapuram. The home page is given below.

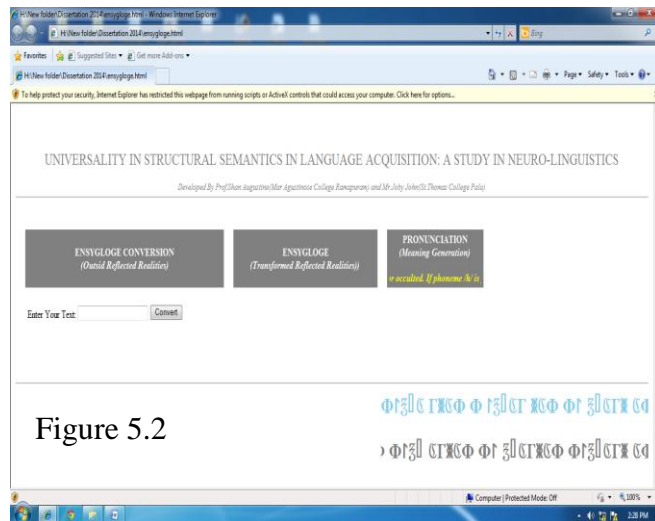


Figure 5.2

With the help of this HTML program it can be proved that the values of graphemes are man- made. At present there are 36365 Unicodes available. Within this simple program the value of all English letters are equalized with some selected Unicodes. The pronunciation of each English letter is also substituted with

different phonetic representation. If any language is transliterated with the help of English letters, those transliterations will also be converted to these selected graphemes (Unicodes) and phonetic representations E.g.

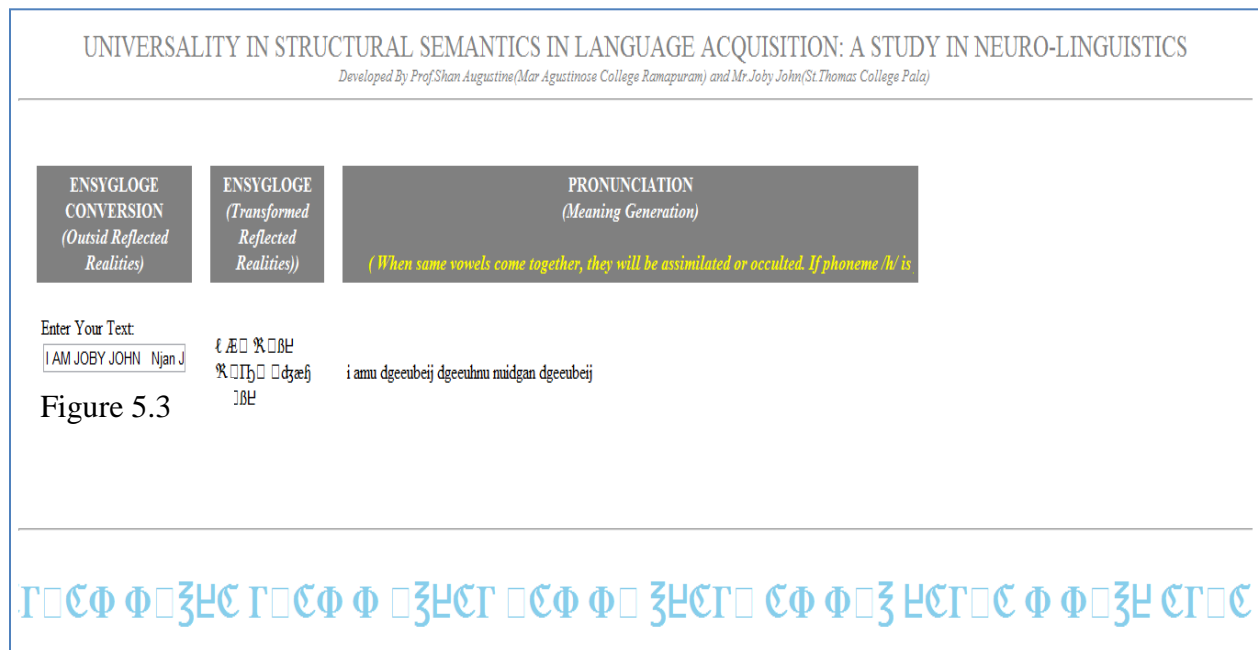


Figure 5.3

This is the same procedure taking place when the reflected realities (especially of languages) are received with the sense organs. All of them are converted to bio-electricity (neuro- impulses) as the letters are converted to the ENSYGLOGE (selected Unicodes). The phonetic representations will be changed according to the different placing of the English letters. It is the same way meaning changes within the brain, because variation in frequency and change in quantity of impulse cause changes in meaning in a slight manner. Therefore, the value of the grapheme in all the living and dead languages are limited and at the same time they are arbitrarily placed. No grapheme carries a single pronunciation. Therefore the graphemes of a word are not sufficient to carry its sound units and those sound units change immediately after utterance (as in Sphota theory). It causes the change in meaning. When this universal nature is analyzed in the context of neurolinguistics, it is clear that impulses change in each and every second. It causes the change in meaning. Impulses are in flux and meaning is generated by the process of amalgamating different sensory impulses. These impulses are generated and transmitted with the help of chemical reactions within the body. The body has also the capacity to amplify these impulses.

Human beings have the capacity to generate infinite utterances. These utterances become meaningful only when an object is attributed to it. Ferdinand de Saussure's "sign" which consists of "signifier" and "signified" ("vakya" and "vacya" in sanksit linguistic theory) can also be taken into consideration. Though an utterance is given an object, a series of utterances which are necessary to define the meaning of that utterance. Michael Swan gives an entry on the development of language in his book entitled *Grammar*.

Over very long periods, the larger processes of languages change appear to be cyclical. Ordinary words are grammaticalized into auxiliaries and particles; these

merge with nouns or verbs to become inflections; as phonetic erosion reduces the inflections to the point where they lose their values, new auxiliaries and particles are created to fill the gaps; these *begin* to merge with nouns or verbs in their turn. The initial process of grammatical creation is clearly visible in the way new languages.....creoles....develop from pidgins.... While we will never know how language was born, many linguists believe that the development of creoles out of pidgins may recapitulate an original two-stage process of language evolution, whereby true languages developed out of more primitive ‘protolanguage’ which had little or no grammar, and would therefore have been of limited value for communication. If this was the case, grammaticalization certainly played a central part in the transformation (58, 59).

Competency can be understood by analyzing the capacity of a user to enlarge a noun and to extend a verb in order to expand a particular sentence to convey a particular meaning. Therefore structural changes will affect the meaning as a sentence is analyzed subjectively. This universal phenomenon of all tongues is represented with the help of p-markers (Phrase makers, a

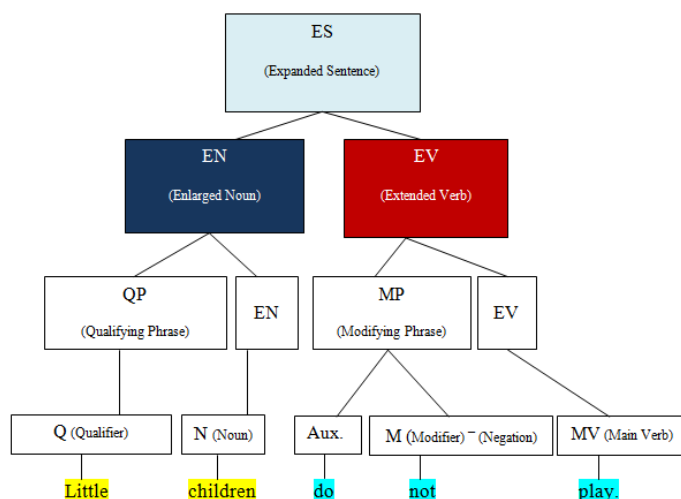


Figure 5.4 Statement

tree - like representation by which sentence analysis is portrayed) by which different sentences from English are expanded. Here four kinds of sentences are analyzed with the help of rewrite rules of Expansive Grammar. The example given above (Figure 5.4) is a

negative sentence. This sentence is an expanded form of the noun “children” and of the verb “play”. A negative indication is placed in between the auxiliary verb and the main verb. This is known as V-Fission. V-Fission not only takes place in negative sentence but also in interrogative, exclamatory and poetic expressions too. But in agglutinative languages like Malayalam and Syriac V-Fusion takes place instead of V-Fission to represent sentence transformation. Changes in the tense and number of the subject also affect the auxiliary verb in V-Fission. V-Fission deals with not only negative infix but also with Subject infix (“Subject” here means “Subject of a sentence”). But in V-Fusion affixes are amalgamated with the verb as if they were one.

The following figures show how V-Fission has taken place in interrogative sentences. An interrogative phrase is added to demonstrate the place where the action has taken place. Varieties

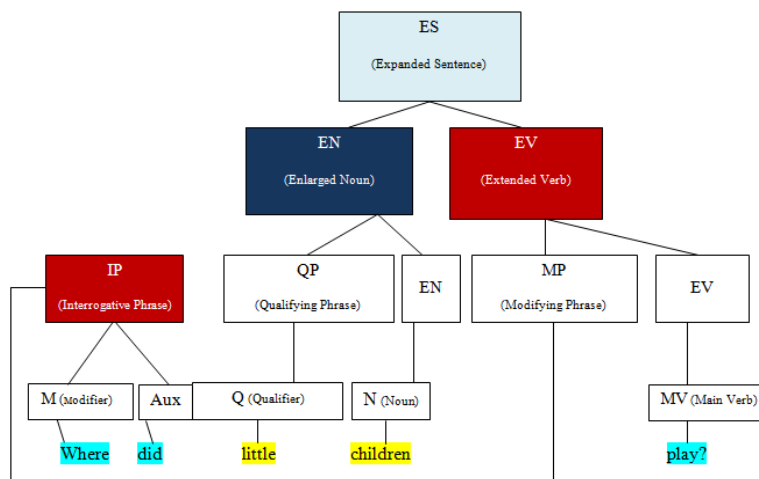


Figure 5.5 Question

of modifiers are placed before the auxiliary verb to show manner, place, object, time, subject and so on (See Figure 5.5). It is clear from **Figure 5.5** that the question “Where did little children play?” is also derived from the sentence

“Little children played (somewhere).” The interrogative phrase is placed before the verb and after the subject in agglutinative languages. But the interrogative modifier is placed before a verb in V-Fusion as if in V-Fission. The interrogative sentence is also an expanded form of a noun and a verb (see Figure 5.6).

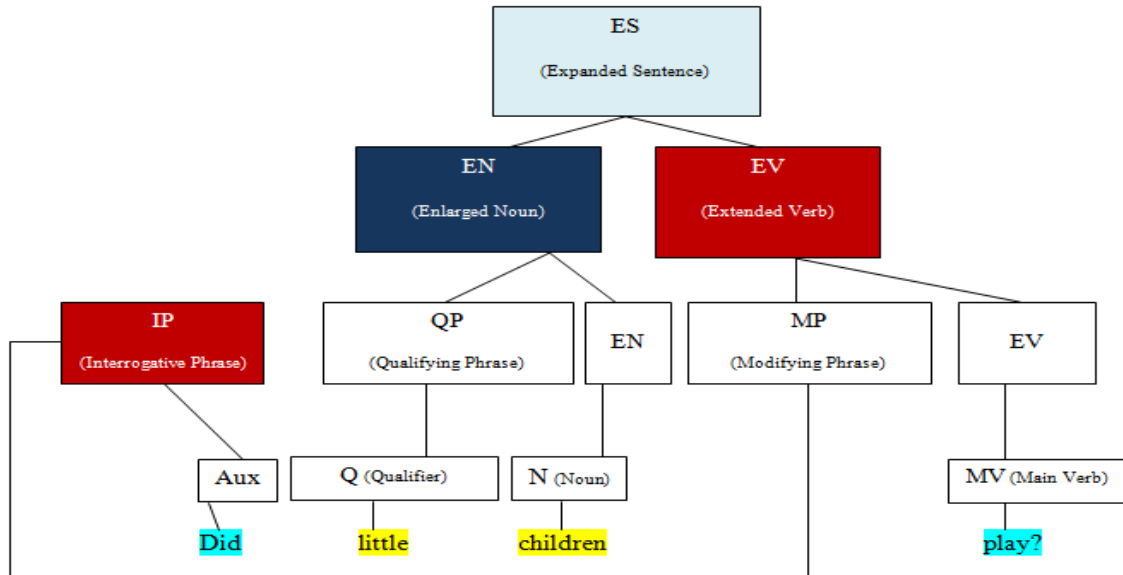


Figure 5.6 Yes/No Question

Imperative sentences in all languages begin with extended verb (EV). But the hidden subject is obvious as in Figure 5.7. There is only an unchangeable noun (second person) as the subject. It does not mean that **EN** is part of **ES**. Here **EV** becomes an advised or forced action which is to be done by the **EN**. The imperative sentence is also derived from the assertion “You

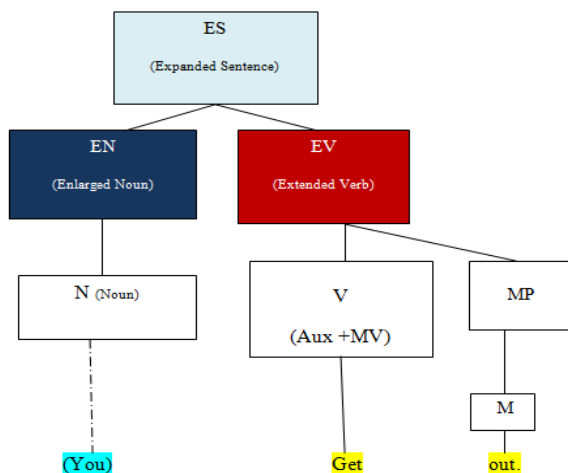


Figure 5.7 Imperative Sentence

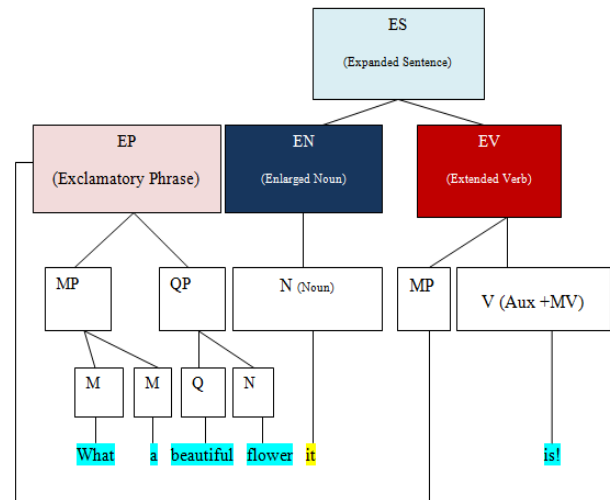


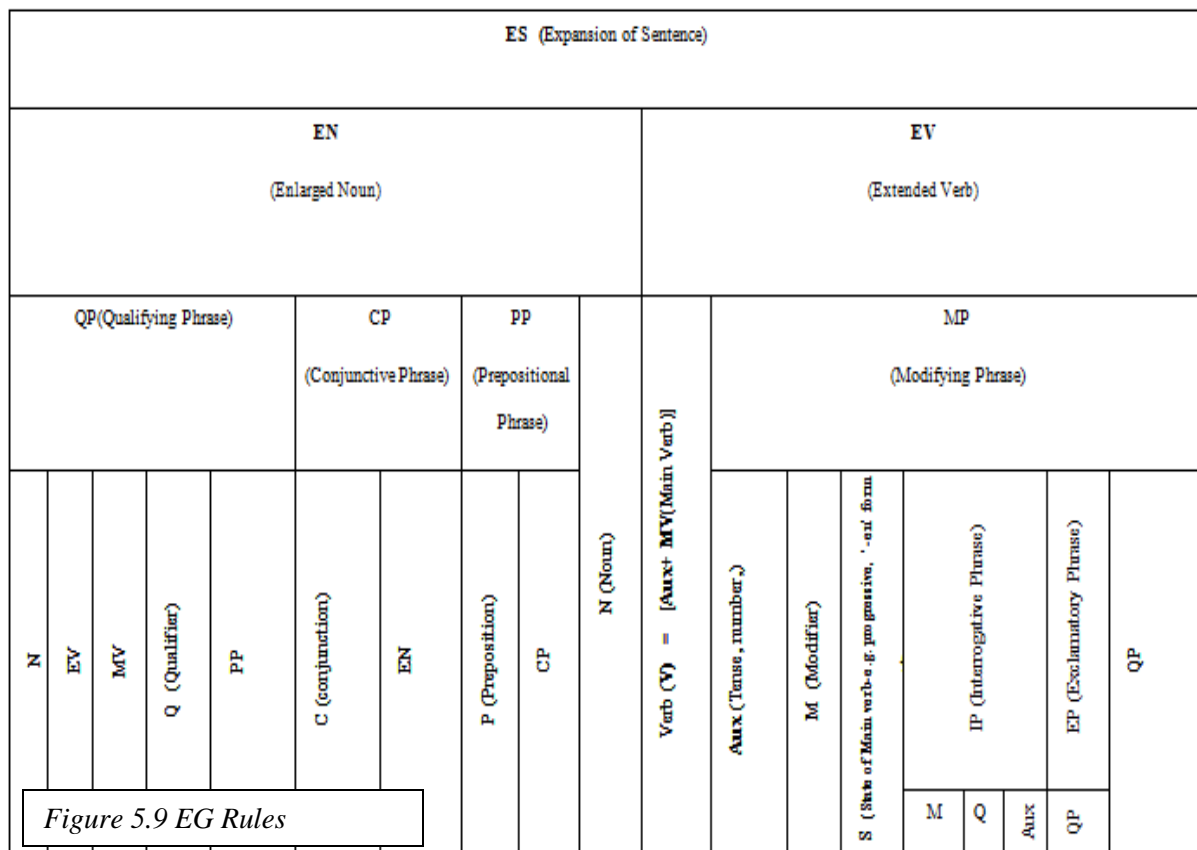
Figure 5.8 Exclamatory Sentence

get out.” But the **EV** is emphasized to generate the requested or forced nature of the action what

is to be done by the subject in **EN**. This way of giving importance is known as “Projecting”.

Projecting is used in all varieties of sentences. In the following example (Figure 5.8) **EP** is projected to express a sudden feeling. This sentence is also derived from an assertion “Flower is very beautiful.” *Projecting* is the way how parts of sentences are given importance by misplacing them from one to another. *V-Fission*, *V-Fusion* and *Projecting* are the common features of all languages by which varieties of sentences are formed and transformed in a unique manner from one to another. It is also how knowledge is generated within the brain. Language acquisition also is a process of conjoining different transformed reflected realities. This conjoining becomes expanded when various impulses are joined to it. The following figure (Figure 5.9) shows how a sentence gets expanded by enlarging noun and extending verb.

EG is applicable to all varieties of languages including agglutinative types (e.g.



Malayalam, Syriac and so on). The expansion of noun and verb is part of the universal structure and the way of such expansion changes the meaning of the expression. When these words are arranged one after another in a sentence the expanded forms get meaning. The meaning of a sentence will change according to the pattern of suprasegmental features. Foreign language learner study the noun and the verb along with their structure and then they learn to expand the sentence. Structural changes affect the meaning (*Projecting*). Therefore there is universality in structural semantics in language acquisition, because *EG* is the only way of language acquisition. *EG* deals with the logical continuity of competency. All these actions happen in the brain. Damage in the brain or sensory organs may lead to illogical competency (i.e. it causes infinite structural variations in *EG*) because illogical structural shifts may lead to ambiguity. Through language processing human beings use words to communicate ideas and feelings and communications are processed and understood within the brain. Language is the outcome of an internal structure. Therefore there is universality in structural semantics and language acquisition.

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